

REMARKS

Claims 1, 7, 8, 11 and 17-18 are pending in this application, of which claims 1, 8, 11 and 18 have been amended. Claims 2-6, 9-10, 12-16 and 19-50 have been canceled. No new claims have been added.

The Examiner has required a new, more descriptive title. Accordingly, the title has been so amended.

Claims 8 and 18 stand rejected under 35 U.S.C. § 112, second paragraph, as being indefinite.

Accordingly, claims 8 and 18 have been amended to correct the noted instance of indefiniteness, and the 35 U.S.C. § 112, second paragraph, rejection of claims 8 and 18 should be reconsidered and withdrawn.

Before turning to the cited references, a brief review of the claimed invention is in order.

Independent claim 1, as amended, recites a method for forming an electric circuit on a construction member of a machine based on a set of three-dimensional data, the data used to determine a position and a profile of the construction member, a position of the electric circuit, and a shape of the electric circuit, the electric circuit used for electrical connection between electric instruments mounted on the construction member, wherein the data is associated with a reference coordinate system provided in the machine, and the data includes coordinates of points for determining arrangement of the electric circuit, a distance between any two of the points adjacent to each other, and a cross-sectional area of the electric circuit extended between the two

points, the method comprising the step of converting the data to a second set of data associated with a reference coordinate system provided in the construction member, the method further comprising the step of intermittently jetting a first molten metal against the construction member to define a row of metal grains (as referred to on page 49, lines 8-12 of the original specification of the instant application) so as to deposit the first molten metal on a surface of the construction member to form the electric circuit on the construction member based on the second set of data.

Thus, the electric circuit is defined on the construction member at a desired position of the construction member (as referred to on page 37, lines 4-6 of the original specification of the instant application).

Independent claim 11, as amended, also has substantially the same feature as that of claim 1, as amended.

Claims 1, 4, 7, 8, 11, 14, and 17-18 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent 5,746,844 to Sterett et al. (hereafter, "Sterett et al.") in view of U.S. Patent 4,656,048 to Kudoh et al. (hereafter, "Kudoh et al.").

Applicants respectfully traverse this rejection.

None of the cited references discloses that a data is associated with a reference coordinate system provided in the machine, and that the data includes coordinates of points for determining arrangement of the electric circuit, a distance between any two of the points adjacent to each other, and a cross-sectional area of the electric circuit extended between the two points. None of the cited references discloses the step of converting the data to a second set of data associated

with a reference coordinate system provided in a construction member and the step of depositing the molten metal on a surface of the construction member to form the electric circuit on the construction member based on the second set of data.

Kudoh et al. discloses a thick film circuit defined by continuously feeding a paste but does not disclose intermittently jetting a molten metal against a construction member to define a row of metal grains, as in the present invention.

Independent claims 1 and 11 have been amended to recite this distinction.

Thus, the 35 U.S.C. § 103(a) rejection of claims 1, 4, 7, 8, 11, 14 and 17-18 should be reconsidered and withdrawn.

Claims 1, 4, 11 and 14 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent 6,520,402 to Orme-Marmerelis et al. (hereafter, "**Orme-Marmerelis et al.**") or JP 10-226,803 (hereafter, "**JP '803**") in view of **Kudoh et al.**

Applicants respectfully traverse this rejection.

JP '803 discloses a three-dimensional body as shown in FIGS. 4, 6 and 7, in which molten metal is spouted from a nozzle to form droplets which can be applied to a substrate to form electric circuits defined in a three-dimensional body by arranging electrically conductive and insulating droplets, each droplet determined to be positioned as an element of the body.

However, **JP '803** does not disclose that a data associated with a reference coordinate system is provided in a machine, nor that the data includes coordinates of points for determining arrangement of the electric circuit, a distance between any two of the points adjacent to each

other, and a cross-sectional area of the electric circuit extended between the two points.

Furthermore, **JP '803** does not disclose the step of converting a data to a second set of data associated with a reference coordinate system provided in a construction member to deposit the molten metal on a surface of the construction member to form the electric circuit on the construction member based on the second set of data.

Thus, the 35 U.S.C. § 103(a) rejection of claims 1, 4, 11 and 14 should be reconsidered and withdrawn.

Claims 7, 8 and 17-18 stand rejected under 35 U.S.C. § 103(a) as unpatentable over **Orme-Marmerelis et al.** or **JP '803** in view of **Kudoh et al.** and further in view of **Sterett et al.** or U.S. Patent 6,501,663 to Pan (hereafter, "**Pan**").

Applicants respectfully traverse this rejection.

Sterett et al. fails to relate to a circuit defined by metal grains, and none of the cited references, including **Pan**, teaches, mentions or suggest the features of claims 1 and 11, as amended, from which these claims depend.

Thus, the 35 U.S.C. § 103(a) rejection of claims 7, 8 and 17-18 should be reconsidered and withdrawn.

In view of the aforementioned amendments and accompanying remarks, claims , as amended, are in condition for allowance, which action, at an early date, is requested.

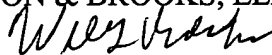
U.S. Patent Application Serial No. 10/047,992
Response to Office Action dated July 11, 2005

If, for any reason, it is felt that this application is not now in condition for allowance, the Examiner is requested to contact the applicants' undersigned attorney at the telephone number indicated below to arrange for an interview to expedite the disposition of this case.

In the event that this paper is not timely filed, the applicants respectfully petition for an appropriate extension of time. Please charge any fees for such an extension of time and any other fees which may be due with respect to this paper, to Deposit Account No. 01-2340.

Respectfully submitted,

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